Amendments to Application no. 10/707,919

Amendments to Specification

1. Replace paragraph [0002] with one replacement paragraph:

[0002] This invention is about an air sterilizing system, which uses intense 253.7nm wavelength ultraviolet (UV) irradiation to free air from live bacteria, viruses and other microorganisms. The method can also be applied to sterilize any fluent material, including gas, water or other fluids, containing every kind of live microorganisms naturally with or from biological agents used by terrorists or in warfare.

2. Replace paragraph [0012] with one replacement paragraph:

[0012] This invention is about an air sterilizing method and apparatus to destroy all live microorganisms in the air in large volumes (300 cfm to 30,000 cfm) to satisfy the increasing needs for the purposes of anti infectious disease and anti terrorism. These apparatus can sterilize either fresh air or return air before distribution. Or they can be used to sterilize contaminated air before exhausting it to the environment. An apparatus can be designed for a killing rate higher than 99.999% by adjusting the number of UV lamps and extending the length of the circuitous sterilizing chamber(s). The employment of circuitous chamber(s) is for the purpose of increasing exposure to UV radiation that is used to kill all live microorganisms that pass through the inlet filter.

3. Replace paragraph [0042] with one replacement paragraph:

[0042] Referring to Fig.1, the basic construction of an apparatus for sterilizing air in large volume (300 cfm to 30,000 cfm) by radiation of 253.7nm wavelength ultraviolet rays in accordance with this invention is shown, including an exterior housing 8 with an air inlet 1, an blower or fan and associated motor 2, an inlet filter unit 3, a roundabout UV germicidal sterilizing chamber 10 with UV visual inspection windows 5 and UV sensors 6 on it, an air outlet 11 with an inspection window 12 and an outlet filter 13.

4. Replace paragraph [0044] with one replacement paragraph:

[0044] As better shown in Fig. 2, within the inlet 1, there is preferably a blower or fan and associated motor 2 to give air enough power to go though the apparatus. Connected to the inlet 1, there is an inlet filter unit 3 so that all air drawn through the inlet 1 must pass through the inlet filter 3 before entering the chamber 10. The basic function of the inlet filter unit 3 is intercepting and retaining any fairly large particles (1um to 10 um) to increase UV killing power and to protect UV lamp tubes 15 in said chamber 10 where air flows from the inlet filter unit 3 to the outlet filter unit 13.

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5. Replace paragraph [0045] with one replacement paragraph:

[0045] The air outlet 11 is preferably positioned on the top of the housing 8 so that the sterilized discharging air can easily goes into the air distribution duct (not shown) that leads to every rooms in a building, or into air exhaust pipe(s) (not shown) to the air outside. Between the sterilizing chamber and the outlet, there is an outlet filter unit 13. The purpose of this filter is to prevent particles from getting into the air distribution duct. So, the outlet filter unit 13 can be designed according to the requirements of applications, from ~~normal~~ HVAC filters to HEPA/ULPA filters, preferably HEPA filters for most of the applications. ~~The outlet filter unit is also comprised of a catalytic filter to convert ozone into oxygen.~~ On the outlet 11, there is an inspection window 12 for taking air samples for live microorganism's inspection to supervise sterilizing effect and air quality.

6. Replace paragraph [0046] with one replacement paragraph:

[0046] In the sterilizing chamber 10, which is constructed basically by the six sides of the housing 8 and internally as continually circuitous tunnel by interior walls, there is always a curved (circular) flow guiding interior 7 to make a smooth roundabout wherever the air flow turns its direction in the chamber 10 to reduce flow resistance. The interior surfaces 9 of the sterilizing chamber 10 is made with anti-ultraviolet, light reflecting material with mirror surface to increase the interior reflection and thus increase the UV sterilizing effect. The length of the tunnel and/or the number of roundabouts of the chamber 10 can be reduced or increased according with the number of UV lamps to be installed. The opening size of the sterilizing chamber 10 is mainly decided by the volume of air to be sterilized. Normal sizes include, but not limit to, 1'X1', 1'X2', 2'X2', 2'X3', 3'X3', 3'X4', 4'X4'.

7. Replace paragraph [0048] with one replacement paragraph:

[0048] The fundamental difference of this invention from prior art methods and apparatus that were thought having the ability to kill all of microorganisms with only one, two or three UV lamps in a wink is the UV radiation ~~exposure~~ intensity. The basic formula is that the amount ~~product (UV radiation value)~~ of UV power multiplying exposure time must be higher than the UV death value of any microorganisms. In other words, the sterilizing dosage of UV radiation should be high enough so that there will not be any microorganism survived.

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